CLEMSON COOPERATIVE EXTENSION

Entomology
Insect Information Series

Providing Leadership in Environmental Entomology
Department of Entomology, Soils, and Plant Sciences ● 114 Long Hall ● Clemson, SC 29634-0315 ● Phone: 864-656-3111
email:dpento@clemson.edu

INSECT PESTS OF CUCURBITS

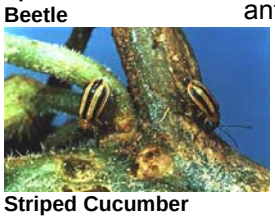
CUCUMBER BEETLES

The spotted, striped, and banded cucumber beetles are very injurious to cucurbits, particularly young plants. Beetles commence feeding on plants as soon as they emerge and either kill the plants or greatly retard growth. In cucurbit plantings throughout South Carolina, beetles have been observed entering the soil through cracks and feeding on seedlings below the soil surface. Beetles are present throughout the growing season and feed on all parts of the plant including the flowers and fruit.

Cucumber beetles also transmit bacterial wilt of cucurbits. This disease overwinters in the intestines of the beetles and is scattered from plant to plant and field to field as the beetles feed. Infected plants eventually wilt and die. In addition to carrying bacterial wilt, cucumber beetles aid in the transmission of cucumber mosaic. Cucumber beetle larvae feed on the roots and bore into both roots and stems of cucumber plants.


Spotted Cucumber Beetle

The yellowish green adult spotted cucumber beetle has 11 black spots and a black head with black antennae. The yellowish white larvae have brown heads and are three-fourths inch long when grown.


Striped Cucumber Beetles

The yellow adult striped cucumber beetle is about one-fifth inch long with three longitudinal black stripes on the top wings. The whitish larvae are about one-third inch when grown.


Banded Cucumber Beetle

The adult banded cucumber beetle is yellowish green with three bright green stripes or bands running across the wing covers.

SPIDER MITES


Spider Mites

Spider mites can be a serious problem on cucurbits, especially watermelons and cantaloupes, during hot, dry weather. These minute mites feed on the contents of individual cells of the leaves. This damage appears as pale yellow and reddish-brown spots ranging from small specks to large areas on the upper sides of leaves. Damage can develop very quickly, and the mites can kill or seriously stunt the growth of plants. Because of their small size, spider mites are hard to detect until vines are damaged with hundreds of mites on each leaf. Certain insecticides applied at planting or as a foliar spray for insect control apparently contribute to severe outbreaks on melons by killing natural enemies.

MELON APHIDS

Melon aphids and several other aphid species attack cucurbits, particularly melons and cucumbers. Melon aphids vary in size and color from light yellow, green to black. Some are winged, while others are wingless. They are found chiefly on the underside of the leaves, where they suck the sap from the plants and cause a reduction in the quality and quantity of the fruit. Infested leaves curl downward and may turn brown and die. The melon aphid also is one of the chief agents in transmitting cucumber mosaic. Cucurbits usually are not attacked by aphids until the vines form runners, and then infestations commonly begin in small scattered spots over the field. Consider natural controls when making a treatment decision. Beneficial insects are extremely important in keeping aphid populations in check. Infestations usually are higher in hot, dry summers, following cool, dry springs, which have reduced the efficiency of the natural enemies.

SQUASH BUGS

The squash bug is one of the most common and troublesome pests in the home vegetable garden. Squash plants frequently are killed by this sap-feeding pest. Leaves of plants attacked by the bugs may wilt rapidly and become brittle. Winter varieties of squash, such as Hubbard and Marrows, are much more severely damaged by the squash bug than other varieties. Control is required for commercial plantings, as well as to protect squash in the home garden.

The adult squash bug is rather large, brownish-black, and flat-backed. It is about five-eights inch long and approximately one-third as wide. The young, called nymphs, are whitish to greenish-gray, with black legs, and vary in size from tiny, spider-like individuals when first hatched, to maturing nymphs which are nearly as large as the winged adults.

Squash Bugs
Photo Source: Entomology Dept.
University of Nebraska-Lincoln

The squash bug is secretive in habits. Adults and nymphs may be found clustered about the crown of the plant, beneath damaged leaves, and under clods or any other protective ground cover. They scamper for cover when disturbed. The secretive nature of squash bugs can be used to your advantage in controlling these pests. Place a small, square piece of old shingle or heavy cardboard under each squash plant. As bugs congregate under it for protection, simply lift the “trap” and smash them with your hoe (or shoe).

Unmated adult squash bugs seek fall shelter wherever it may be found. In spring, they usually are active by the time squash plants begin to run. Following feeding and mating, egg laying soon begins. The yellowish-brown to brick-red eggs are laid in groups or clusters, usually on the lower side of leaves in angles formed by the veins. Egg laying continues until mid-summer by females which survived the winter. Only one generation of bugs develops each year. New adults do not mate until the following spring.

SQUASH VINE BORERS

The squash vine borer ranges from Canada to Argentina and is the most serious enemy of squashes and gourds. It causes much trouble where only a few plants are grown in gardens. It rarely attacks cucumbers and melons. Great variations exist in the susceptibility of squash and pumpkin varieties. Butternut and Green-Striped Cushaw varieties are practically immune to attack, but Hubbard squash is highly susceptible.

Squash Vine Borers
Photo Source: Entomology Dept.
University of Nebraska-Lincoln

Damage is caused by larvae tunneling into stems, often killing plants, especially when they are feeding in the basal portions of vines. Sometimes fruits are also attacked. Sudden wilting of a vine and sawdust like excrement coming from holes in the stem are evidences of attack.

The adult is one of the moths known as “clear wings” because the hind wings are almost without scales. It is 1½ inches in wing expanse, and metallic green-black in color; hind legs are fringed with black and orange hairs, and markings of similar color occur over much of the abdomen. The moths are day fliers and are often mistaken for wasps. Larvae are white, heavy-bodied, and considerably over one inch long when fully grown.

The insect winters in soil as a larva or pupa enclosed in a cocoon. Moths emerge in early summer and lay eggs on the stems of the plants, usually late May in the South. Upon hatching, larvae bore into vines and complete their development in four or more weeks, then leave the plant, crawl into the soil, spin a cocoon, and transform to a pupa. There are two generations in South Carolina.

PICKLEWORMS

The pickleworm severely damages cucumbers, cantaloupes and summer squash. It also feeds on other cucurbits, such as winter squash, watermelons and pumpkins, but usually does little damage.

Pickleworm damage occurs when the caterpillars tunnel in flowers, buds, stems and fruits. They prefer the fruits. Frass often protrudes from small holes in damaged fruits. At times, damaged fruits cannot be recognized until they are cut open. Damaged fruits are not edible. Flowers, buds, and sometimes entire plants may be killed.

Pickleworm Old Larva

In South Carolina, pickleworms starve or freeze to death during the winter. They overwinter in Florida however, and spread northward each spring. Severe damage usually does not occur before summer in South Carolina. Heavy populations generally do not build up before the first flower buds open, however, late crops may be destroyed before blossoming.

Pickleworm Young Larva

The pickleworm has complete metamorphosis, passing through four distinct stages (egg, larva, pupa and adult) during development.

Eggs are yellow, irregularly shaped, and resemble grains of sand. They are laid singularly or in small groups on leaves and hatch in three to four days.

Larvae feed first on buds, blossoms and tender terminals, but soon move to the fruits. These brown-headed caterpillars molt (shed their skin) four times before they become about three-fourths inch long and fully grown in 9 to 28 days. The body is yellowish-white at first, but many reddish-brown spots appear on the back after the first molt. After the last molt, the caterpillar loses its spots and becomes solid green or copper. Finally, the caterpillar stops feeding, becomes pink to pale green and spins a thin silk cocoon around itself, usually within a folded-over portion of a leaf where it pupates.

Pupae are light to dark brown and slightly more than three-fourths inch long. Pupae are usually found in a rolled leaf. However, they have been found inside cantaloupe and summer squash in rare instances. Adult usually emerges after 7 to 10 days.

Adults are brownish-yellow moths that have a rounded brush of hairs at the rear of the body. The brownish-yellow wings have a purplish sheen, translucent yellow-white centers and a spread of about one inch. Moths are active at night.

SQUASH BEETLES

Squash Beetle

The squash beetle is one of two species of *Coccinellidae* known to occur in the United States which are not carnivorous, but phytophagous in nature. The squash beetle feeds upon the leaves of cucurbitaceous plants. The other species, the Mexican bean beetle (a close relative of the squash beetle), is a serious bean pest. All other lady beetles are carnivorous and beneficial, because they feed on injurious insects such as aphids and scale insects.

CONTROL OF CUCURBIT INSECTS

Cucumber beetles or squash beetles can effectively be controlled using an appropriate insecticide. For heavy populations of aphids, control using insecticide, or an insecticidal soap. Spider mites require a miticide. Apply miticide twice, 5-7 days apart for adequate control. For squash bugs, and vine borers and pickleworms after mid-June, apply insecticide weekly.

Check with your local County Extension Agent for specific insecticide recommendations.

For other publications in our Entomology Insect Information Series visit our web site at http://www.clemson.edu/esps.

Prepared by Randall P. Griffin, Extension Entomologist/ Professor, Department of Entomology, Soils, and Plant Sciences, Clemson University.

EIIS/FV-6 (New 11/1997; Rev. 01/1998)(revised-paz-05/2011).